

PATENT APPLICATION

THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Douglas McBain

Application No.: 10/550,435

Examiner: Xue H Liu

Filed: 09/20/2005

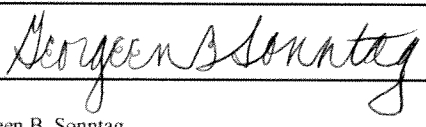
Docket No.: OMNZ 2 00039 US

For: **COATING IN MULTIPLE INJECTION MOLDING PART CAVITIES**

**BRIEF ON APPEAL**

Appeal from Group 1791

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**I. REAL PARTY IN INTEREST**

The real party in interest for this appeal and the present application is OMNOVA Solutions, Inc., by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 017791, Frame 0779.

**II. RELATED APPEALS AND INTERFERENCES**

There are no prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal.

**III. STATUS OF CLAIMS**

Claims 1-9 are on appeal.

Claims 1-4 and 7-9 are pending.

Claims 1-4 and 7-9 are rejected.

Claims 10-19 are withdrawn from consideration.

Claims 5-6 are canceled.

**IV. STATUS OF AMENDMENTS**

An Amendment After Final Rejection was filed on August 21, 2009. By an Advisory Action dated August 31, 2009, it was indicated that the requested amendments had been entered.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

The invention of claim 1 is directed to a molding apparatus 10 (Fig. 1). The molding apparatus comprises mold members 12, 14 (Fig. 1, [0020]) that define a plurality of fixed mold cavities 16 and 34, 36 (Fig. 1, [0020] [0034]) therebetween, an injection molding injector 30 that is fluidly connected to each of the plurality of mold cavities 16 for injection molding articles therein, and an in-mold coating injector 32 (Fig. 1, [0034] [0035]). The in-mold coating injector 32 has a single nozzle 64 that is fluidly connected to each of the plurality of mold cavities 34, 36 for in-mold coating the molded articles in the plurality of mold cavities 34, 36 (Fig. 2). The plurality of mold cavities 34, 36 that are fluidly connected to the injection molding injector 30 are the same as those fluidly connected to the in-mold coating injector 32 (Fig. 2). The mold members 12, 14 and the injectors 30, 32 are configured to injection mold and in-mold coat molded articles in the mold cavities 34, 36 while the mold members 12, 14 remain a fixed distance apart relative to one another during and between injection molding and in-mold coating ([0036], page 10, line 32-page 11, line 4). The molding apparatus 10 further includes a runner section 40 and an in-mold coating injector passageway 38 fluidly connected to the in-mold coating injector 32 and the runner section 40 (Fig. 2). The in-mold coating injector passageway 38 has a smaller cross-sectional area than the runner section 40 adjacent an intersection between the in-mold coating injector passageway and the runner section (Fig. 3, [0040], lines 20-24). The runner section 40 is generally cylindrical with a portion of the runner section adjacent the intersection being relatively flat in shape (Fig. 5).

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following grounds of rejection are presented for review:

Claims 1-4 and 7-9 are rejected as having been obvious under 35 U.S.C. §103(a) over Keiji (JP 09039024 with English Abstract and Machine Translation) (hereinafter “Keiji”) in view of Arai (U.S. 4,840,553) (hereinafter “Arai”).



## VII. ARGUMENT

### A. Claims 1-9 are Patentable over the Cited References

Independent claim 1 is directed to a molding apparatus that comprises mold members defining a plurality of fixed mold cavities therebetween, an injection molding injector fluidly connected to each of the plurality of mold cavities for injection molding molded articles therein, and an in-mold coating injector having a single nozzle fluidly connected to each of the plurality of mold cavities for in-mold coating the molded articles in the plurality of mold cavities. The plurality of mold cavities fluidly connected to injection molding injector is the same as those fluidly connected to the in-mold coating injector. The mold members and the injectors are configured to injection mold and in-mold coat molded articles in the mold cavities while the mold members remain a fixed distance apart relative to one another during and between injection molding and in-mold coating. The molding apparatus further includes a runner section and an in-mold coating injector passageway fluidly connected to the in-mold coating injector and the runner section. The in-mold coating injector passageway has a smaller cross-sectional area than the runner section adjacent an intersection between the in-mold coating injector passageway and the runner section. The runner section is generally cylindrical with a portion of the runner section adjacent the intersection being relatively flat in shape. It is respectfully submitted that Keiji and Arai do not, individually or in combination, teach or suggest the subject limitations as recited in the present claims.

Keiji in view of Arai does not teach or suggest an injection molding injector and in-mold coating injector having a single nozzle fluidly connected to each of the plurality of mold cavities. In the Advisory Action, the Examiner asserts that the test under 35 U.S.C. 103(a) is not what the references expressly or individually teach, but what their combined teaching would fairly have suggested to a person skilled in the art. The Examiner cites *Sjolund v. Musland*, 6 USPQ 2d 2020 (Fed. Cir. 1988) to support the reasoning that although no explicit suggestion was provided for the claimed feature, such a difference was held to be minor and within the “ken of a routineer.” (See Advisory Action, page 3). Appellant/Applicant respectfully asserts that the situation in *Sjolund* is inconsistent with that in this case. The claims in *Sjolund* simply used a plurality of panels rather than the well known use of a single panel. The reason for the plurality of panels was that Sjolund wanted to make the panels out of molded plastic, and it was not

feasible to do so in a single panel large enough for the required use. In contrast, the presently claimed invention does not recite a simple substitution of multiple injection nozzles for a single nozzle that essentially performs the same function. Keiji specifically requires separate nozzles that are each fluidly connected to a separate mold cavity for the purpose of performing painting simultaneously with the injection molding of a synthetic resin molding material. The multiple nozzles are described as being separate so “[they] can paint partially into the part which needs the front face of mold goods.” (See page 2 of Machine Translation). Substituting the single nozzle taught in Arai into the apparatus of Keiji would not be minor or within the ken of a routineer, as asserted by the Examiner, since this would teach away from Keiji’s disclosed purpose. Although one of ordinary skill in the art is presumed to know something about the art apart from what the references alone teach, there still must exist some rational underpinning to support why one of ordinary skill would have combined the prior-art elements in the manner claimed. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 127 S. Ct. 1727; 82 USPQ2d 1385 (2007); MPEP 2142.

Appellant/Applicant maintains that the Examiner has failed to establish a prima facie case of obviousness. According to MPEP 706(j), “to support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” Appellant asserts that the Examiner’s reasoning fails under either avenue.

It has been established that the cited references do not expressly suggest the claimed invention. (See Advisory Action, page 3). It is additionally submitted that, in light of Keiji’s explicit requirement for two separate nozzles, there is no implicit suggestion of the claimed invention found in the references. Accordingly, the Examiner must provide a convincing line of reasoning as to why the artisan would have found the claimed invention obvious in light of the teachings of the references. The Examiner reasons that it would have been obvious to provide the shared pathway as taught by Arai in the molding apparatus of Keiji since “this would allow a coating injector having a single nozzle to fluidly connect to a plurality of mold cavities similar to the way that the injection molding injector is fluidly connected to a plurality of mold cavities via a single nozzle, this eliminating the need for a coating injector having a plurality of nozzles that

individually connect to each of the plurality of mold cavities.” (See final Office Action, page 4). This reasoning is inconsistent with the teachings of Keiji, since Keiji discloses the use of separate nozzles for painting particular portions of the molds.

The Federal Circuit has stated, "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). Applicant asserts that the Examiner's reasoning is conclusory, since, although the proposed combination goes against the teaching of the references, the Examiner fails to provide an explanation as to why the combination would have nonetheless been obvious to one of ordinary skill in the art.

Additionally, Appellant/Applicant maintains that even if the proposed combination of Keiji and Arai was proper, the result would not arrive at the presently claimed invention. Arai teaches the use of a single nozzle with a shared pathway to a single cavity. Therefore, if Arai was combined with the teaching of Keiji (multiple cavities each with separate nozzles), the result would be multiple cavities, each separately fluidly connected to separate nozzles having a shared pathway. There is no teaching or suggestion in either reference that would cause one skilled in the art to provide a molding apparatus with a single nozzle fluidly connected to each of a plurality of mold cavities. The arrangement offered by the Examiner appears to have been created with the use of impermissible hindsight. The Examiner has provided no explanation as to how, after combining Keiji and Arai, one skilled in the art would be motivated to arrange a molding apparatus as is presently claimed. The Examiner appears to improperly incorporate knowledge gained from the present disclosure.

Further, Appellant/Applicant asserts that Keiji in view of Arai fails to teach or suggest an in-mold coating injector passageway and a runner section, wherein the in-mold coating injector passageway has a smaller cross-sectional area than the runner section adjacent an intersection between the passageway and the runner section, and wherein the runner section is generally cylindrical with a portion of the runner section adjacent the intersection being relatively flat. The Examiner asserts that Appellant/Applicant may not effectively prove that the claimed invention is superior to the prior art by changes in shape of the runner to produce unexpected results such as improved flow distribution of the coating material without showing comparative data in support. Appellant/Applicant respectfully submits that the flattened runner section is not

provided as a rebuttal challenging the propriety of combining the references; thus, the standard for proving unexpected results does not apply. Rather, the flattened section of the runner is provided as a feature not taught or suggested in either of the cited references, which does not require proof of unexpected results. In this regard, Appellant/Applicant submits that the flattened section of the runner provides a structural distinction over the cited references.

Moreover, this claimed runner design is neither taught or suggested by the prior art. Furthermore, paragraph [0028] of the present specification recites, “[f]orming a flat runner section is intended to promote better flow distribution of the IMC composition introduced through second injector (in-mold coating injector) onto the runner formed in runner section.” Changing the runner’s shape from cylindrical to flat clearly changes the flow distribution in a way that would not be achieved if the entire runner was the same size, as is illustrated in Arai. Paragraph [0028] continues to explain that the flatness of the runner portion better urges or directs the IMC along the formed runner toward part cavities. Appellant/Applicant asserts that the specification clearly provides sufficient evidence to support the superior properties of the presently claimed invention over the cited references. Clearly, this feature affects the functioning of the apparatus and should not be passed over by the Examiner.

Accordingly, for at least the reasons detailed above, Appellant/Applicant submits that Keiji and Arai do not, independently or in combination, teach or suggest the features of independent claim 1 (along with claims 2-4 and 7-9 that depend therefrom). As such, Appellant/Applicant respectfully requests the rejection be reversed.

**CONCLUSION**

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 1-4 and 7-9 are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejections of claims 1-4 and 7-9.

Respectfully submitted,



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**APPENDICES**

**VIII. CLAIMS APPENDIX**

Claims involved in the Appeal are as follows:

1. (Previously presented) A molding apparatus, comprising:  
mold members defining a plurality of fixed mold cavities therebetween;  
an injection molding injector fluidly connected to each of said plurality of mold cavities for injection molding molded articles therein;  
an in-mold coating injector having a single nozzle fluidly connected to each of said plurality of mold cavities for in-mold coating said molded articles in said plurality of mold cavities, said plurality of mold cavities fluidly connected to said injection molding injector being the same as those fluidly connected to said in-mold coating injector, said mold members and said injectors configured to injection mold and in-mold coat molded articles in said mold cavities while said mold members remain a fixed distance apart relative to one another during and between injection molding and in-mold coating;  
a runner section; and  
an in-mold coating injector passageway fluidly connected to said in-mold coating injector and said runner section, said in-mold coating injector passageway having a smaller cross-sectional area than said runner section adjacent an intersection between said in-mold coating injector passageway and said runner section, wherein said runner section is generally cylindrical with a portion of said runner section adjacent said intersection being relatively flat shape.
2. (Previously presented) The molding apparatus of claim 1, further including: a sprue passageway fluidly connected to said injection molding injector, wherein said runner section is fluidly connected to said sprue passageway and said plurality of mold cavities.
3. (Previously presented) The molding apparatus of claim 2 wherein said runner section includes a plurality of portions fluidly connected to each of said plurality of mold cavities at a plurality of inlet orifices.

4. (Previously presented) The molding apparatus of claim 3 wherein said runner section includes a tapered portion adjacent each of said plurality of inlet orifices for allowing relatively easy removal of thermoplastic material formed in said runner section from said molded articles formed in said plurality of mold cavities.

5. (Cancelled)

6. (Cancelled)

7. (Previously presented) The molding apparatus of claim 1 wherein each of said plurality of mold cavities has a fixed volume that remains fixed when injection molding injector injection molds said molded articles and when said in-mold coating injector in-mold coats said molded articles.

8. (Previously presented) The molding apparatus of claim 2 wherein said runner section includes a containment flange recess in which a molded containment flange is formed directs in-mold coating injected from said in-mold coating injector toward said plurality of mold cavities.

9. (Previously presented) The molding apparatus of claim 1 wherein said plurality of mold cavities is fluidly connected to only a single injection molding injector and is fluidly connected to only a single in-mold coating injector.

**IX. EVIDENCE APPENDIX**

NONE



**X. RELATED PROCEEDINGS APPENDIX**

NONE